



City of
Peterborough

To: **Members of the General Committee**

From: **Michael Papadacos, Interim Commissioner of Infrastructure and Planning Services**

Meeting Date: **May 2, 2022**

Subject: **Monaghan Road – Pedestrian Crossover, Report IPSTR22-008**

Purpose

A report to recommend the implementation of a Pedestrian Crossover on Monaghan Road at Gillespie Avenue.

Recommendations

That Council approve the recommendations outlined in Report IPSTR22-008 dated May 2, 2022, of the Interim Commissioner of Infrastructure and Planning Services, as follows:

- a) That a Pedestrian Crossover Level 2 Type B crossing complete with rectangular rapid flashing beacons be implemented on Monaghan Road at Gillespie Avenue;
- b) That enhanced Ladder Crosswalk pavement markings be installed on Gillespie Avenue at Monaghan Road; and
- c) That the existing 2022 purchase order awarded to Guild Electric Limited for Traffic Signal works be increased in the amount of \$35,000.00 to cover the cost of the electrical works required to construct the Pedestrian Crossover on Monaghan Road at Gillespie Avenue.

Budget and Financial Implications

The implementation of a Pedestrian Crossover (PXO) on Monaghan Road and ladder pavement markings on Gillespie Avenue will cost approximately \$52,000.00, funds for which are available in the 2022 approved Capital budget for Traffic Improvements (Project Reference 5-18.08).

Background

In December of 2021, staff received a request from the Kawartha Pine Ridge District School Board (KPRDSB) for a pedestrian crossover located at Kenner Colligate Vocational Institute. The request was accompanied by a Site Improvements Report by Engage Engineering LTD. providing background data in support of the request.

Pedestrian Crossover Review

Site Details

The study area for the Pedestrian Crossover location request was focused on the section of Monaghan Road between Cameron Street and O'Connell Road. Monaghan Road is a two-lane medium-capacity arterial road with a 50km/h speed limit. It serves a mainly residential neighborhood, Kenner Collegiate Vocational Institute, as well as a few local businesses. Total two-way traffic volume on Monaghan Road between Cameron Street and O'Connell Road is approximately 7,000 vehicles per day. Of the 7,000 vehicles per day, approximately 3% are heavy trucks.

There is currently no controlled pedestrian crossing on Monaghan Road between the signalized intersections at Lansdowne Street West and Cameron Street, a distance of approximately 1.1 km. Monaghan Road has sidewalks and on-street bicycle lanes on both sides of the road through the study area.

School Area warning signs (Wc-1) are posted on all roads approaching the high school. A sketch of the subject area is shown in Appendix A.

Collision History

Over the past five years there has been one right-angle collision (minor injury) and fourteen property damage (no injury) collisions reported on Monaghan Road between O'Connell Road and Orpington Road. None of the collisions involved pedestrians.

Pedestrian Study

As there are no defined pedestrian crossing locations within this area, an 8-hour pedestrian count was conducted on Monaghan Road between O'Connell Road and

Orpington Road to capture the overall demand for pedestrians crossing this section of Monaghan Road. The results of the study are summarized in Table 1.

Table 1 – Monaghan Road Pedestrian Count Results

Location	Crossing East	Crossing West	Total
Orpington Rd. to Gillespie Ave.	28	33	61
Gillespie Ave. to McKeller St.	74	43	117
McKeller St. to Hawley St.	10	8	18
Hawley St. to O'Connell Rd.	15	11	26
Total Pedestrian Crossings Orpington Rd. to O'Connell Rd.			222

The highest number of pedestrians crossed Monaghan Road in the vicinity of Gillespie Avenue during school admission and dismissal time. Staff also observed 173 pedestrians using the west sidewalk and crossing Gillespie Avenue over the duration of the study. To improve the visibility for pedestrians using this busy crossing, it is recommended that enhanced Ladder Crosswalk pavement markings be installed on Gillespie Avenue at Monaghan Road

Intersection Pedestrian Signal

Intersection Pedestrian Signals (IPS) and Mid-block Pedestrian Signals (MPS) are pedestrian activated traffic signals designated solely to provide a gap in traffic to assist pedestrians in safely crossing a major roadway. The City of Peterborough currently has a total of fifteen IPS/MPS throughout the City.

The key elements for a City of Peterborough Intersection Pedestrian Signal Warrant include:

- Pedestrian Crossing Volume converted to Equivalent Adult Units (EAU's)
- Total Number of Safe Gaps in Traffic (Crossing Opportunities)

The data was reviewed in accordance with the City of Peterborough Intersection Pedestrian Signal Warrant (Appendix B). The warrant examines the number of pedestrians during the peak pedestrian hour (converted to Equivalent Adult Units or EAU's) compared to the number of safe crossing opportunities during the same period. The warrant analysis shows that an IPS is not warranted for any of the peak hours.

Pedestrian Crossover Level 2 Type B

On January 1, 2016, Bill 31, the Transportation Statute Law Amendment Act (Making Ontario's Roads Safer) came into effect. Bill 31 includes amendments to the Highway Traffic Act to allow for four variations of Pedestrian Crossovers (PXOs) to be used for low-speed and low-volume roads. This type of crossing treatment is typically used where the requirements for a full pedestrian signal have not been satisfied. Under the Highway

Traffic Act, a PXO will provide the right-of-way to pedestrians to cross the road and the legislation requires drivers to stop until all pedestrians have cleared the crosswalk.

The new PXOs are limited to roads with a posted speed limit of 60 km/h or less and must be implemented in conjunction with a defined set of roadside signs and road pavement markings which form a new passive treatment to provide pedestrians the right-of-way when crossing the roadway, as illustrated in Appendix C. There are four different variations of the PXO treatment defined in the OTM Book 15 standards for different roads with different levels of traffic.

The basic installation features signs and enhanced pavement markings, while busier roadways require enhanced crossing treatments with overhead signing, flashing beacons and enhanced markings. The City of Peterborough currently has a total of four Pedestrian Crossovers throughout the City with two being located adjacent to schools (Thomas A. Stewart Secondary School and Immaculate Conception Catholic Elementary School).

Based on guidelines set out in the Ontario Traffic Manual Book 15 – Pedestrian Crossing Treatments, the data collected on Monaghan Road was applied to the PXO assessment guidelines to determine the suitability for a PXO on Monaghan Road. The results of the assessment are summarized in Table 2.

Table 2 – Pedestrian Crossover Assessment Results for Monaghan Road

Pedestrian Crossover Assessment

Factor	Criteria	Monaghan Road	Criteria Satisfied
Traffic Signal	Traffic Signal Not Warranted	Not Warranted	Yes
Pedestrian Volume	8 Hour Pedestrian volume greater than 100 pedestrians	222 Pedestrians	Yes
Vehicle Volume	8 Hour vehicle volume on main street greater than 750 vehicles	3500 vehicles	Yes
Location	Is the location greater than 200 m from another traffic control	260 m	Yes
Connectivity	Is the location on pedestrian desire lines?	School located at intersection	Yes
Overall Results	All Criteria Satisfied		Yes

As summarized in Table 2, all the Pedestrian Crossover assessment criteria were satisfied, suggesting that a pedestrian cross over on Monaghan Road would be appropriate for this area. Given the higher pedestrian crossing demand at the Gillespie Avenue intersection, staff recommend the implementation of a Level 2 Type B Pedestrian Crossover on Monaghan Road in the vicinity of Gillespie Avenue.

Summary

A pedestrian study was undertaken on Monaghan Road and has shown that the installation of a Pedestrian Crossover Level 2 Type B on Monaghan Road at Gillespie Avenue is warranted. The study also identified a significant number of pedestrians / students crossing Gillespie Avenue at the intersection during school admission and dismissal times. With the added school traffic during these times, enhanced ladder crosswalk pavement markings would improve the visibility of pedestrians crossing Gillespie Avenue.

Submitted by,

Michael Papadacos, P.Eng.
Interim Commissioner, Infrastructure and Planning Services

Contact Names

Kevin Jones

Manager, Transportation Division

Phone: 705-742-7777 Ext. 1895

Toll Free: 1-855-738-3755

email: kjones@peterborough.ca

Peter Malin

Transportation Services Coordinator

Phone: 705-742-7777, Ext. 1846

Toll Free: 1-855-738-3755

email: pmalin@peterborough.ca

Lauren Maloney

Traffic Engineering Technologist

Phone: 705-742-7777, Ext. 1443

Toll Free: 1-855-738-3755

email: lmaloney@peterborough.ca

Attachments

Appendix A– Monaghan Road Study Area

Appendix B– Intersection Pedestrian Signal Warrant Analysis

Appendix C– Pedestrian Crossover Level 2 Type B

[illegible]

Appendix B: Intersection Pedestrian Signal Warrant Analysis

An 8-hour pedestrian count was conducted which determined the peak pedestrian times, 8:00 A.M. – 9:00 A.M. (A.M. Peak), 11:00 A.M. – 12:00 P.M. (Noon Peak) and 2:00 P.M. – 3:00 P.M. (P.M. Peak). The peak hour pedestrian counts on Monaghan Road, in the vicinity of Gillespie Avenue, were converted to Equivalent Adult Units (EAU) which accounts for slower walking speeds and reaction times for vulnerable pedestrians. The adjusted pedestrian crossing demand is shown below:

Table 2 – Adjusted Pedestrian Crossing Demand

Pedestrian Type	A.M. Peak	Noon Peak	P.M. Peak
Adults	19 x 1.0 = 19	37 x 1.0 = 37	43 x 1.0 = 43
Children (<12 years)	0 x 2.0 = 0	0 x 2.0 = 0	0 x 2.0 = 0
Person with a Disability	0 x 2.0 = 0	0 x 2.0 = 0	0 x 2.0 = 0
Senior (>65 years)	0 x 1.5 = 0	0 x 1.5 = 0	0 x 1.5 = 0
Total EAU's	19.0	37.0	43.0

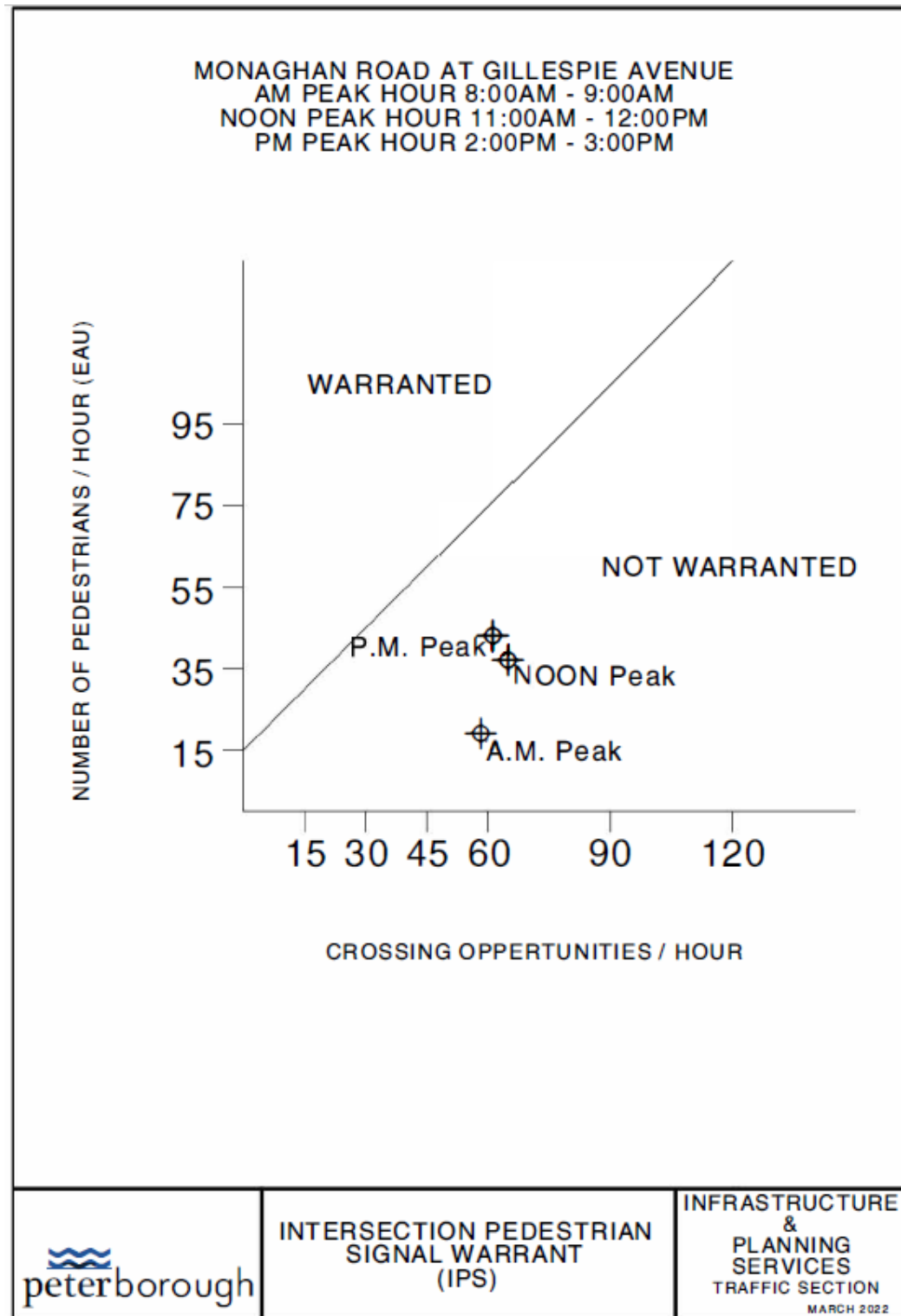
A gap study records the number of safe gaps that exist in the traffic flow that would allow the average pedestrian to safely cross the road. The average pedestrian crossing time on Monaghan Road is 16.84 seconds, based on average walk speed of 1.07 m/sec plus a 4 second reaction time.

The total number of gaps in traffic during peak crossing times large enough to cross Monaghan Road safely is recorded below:

A.M. Peak – 58 gaps
Noon Peak – 65 gaps
P.M. Peak – 61 gaps

The data was reviewed in accordance with the City of Peterborough Intersection Pedestrian Signal Warrant (Exhibit 1). The warrant examines the number of pedestrians during the peak pedestrian hour (converted to Equivalent Adult Units or EAU's) compared to the number of safe crossing opportunities during the same period. The warrant analysis shows that the IPS is not warranted for any of the peak hours.

Exhibit 1 to Appendix B – Pedestrian Crossing Warrant



Appendix C: Pedestrian Crossover Level 2 Type B – Mid-Block (2-lane, 2-way)

